CLAIMS

1/ A method of measuring the propagation time of an ultrasound signal between two spaced-apart transducers constituting an emitter and a receiver, the emitter transducer being subjected to an excitation signal comprising n successive pulses of period T_e, thereby causing an ultrasound wave to be emitted towards the receiver transducer, said ultrasound wave generating a receive signal at the output from the receiver transducer, said method being comprising the following steps:

- beginning a measurement of an intermediate propagation time when the emitter transducer begins to be excited;
- detecting the receive signal at the output from the receiver transducer and counting the oscillations in said receive signal;
- stopping measurement of the intermediate propagation time when an i^{th} oscillation is detected; and
- determining the propagation time of the signal by taking the difference $T_{int} - i \times T_e$.

2/ A method according to claim 1, wherein measurement of the intermediate propagation time is stopped for an i^{th} oscillation of the receive signal that corresponds to the receive signal being at a maximum amplitude.

3/ A method according to claim 1, wherein measurement of the intermediate propagation time is stopped for an i^{th} oscillation of the receive signal, where $i \neq 1$.

4/ A method according to claim 1, wherein the measurement of the intermediate propagation time is stopped for an i^{th} oscillation of the receive signal, where $i=n$.

5/ A method according to claim 1, wherein measurement of the intermediate propagation time is stopped for an i^{th} oscillation of the receive signal, where $i=4$.

6/ A method according to claim 1, wherein measurement of the intermediate propagation time is stopped for an i^{th} oscillation of the receive signal, where $i=5$.

7/ A method according to claim 1, wherein the excitation signal is made up of $\underline{n}$ pulses, where $n \neq 1$.

8/ A method according to claim 1, wherein the excitation signal is made up of $\underline{n}$ pulses where $n=4$.

9/ A method according to claim 1, wherein the excitation signal is made up of $\underline{n}$ pulses where $n=5$.

10/ Apparatus for measuring the propagation time of an ultrasound signal, the apparatus comprising:

· means for forming an excitation signal;

· an emitter transducer connected to said means for forming an excitation signal;

· a receiver transducer to transform the ultrasound signal into a receive signal; and

· comparator means connected to said receiver transducer to compare the amplitude of the receive signal with a trigger threshold voltage and to generate a signal representative of oscillations of said receive signal;

the apparatus being characterized in that it further comprises:

· means for measuring a fixed time connected to said means for forming an excitation signal in order to measure a fixed time from the instant at which the emitter transducer is excited;

· means for determining an i^{th} oscillation, which means are connected to said comparator means, to count the number of oscillations in the receive signal and to detect the i^{th} oscillation; and

· means for measuring a variable time between the end of measuring the fixed time and detecting the i^{th} oscillation.

11/ Apparatus for measuring the propagating time of an ultrasound signal according to claim 10, wherein the means for measuring a fixed time comprise a counter and a decoder.

12/ Apparatus for measuring the propagating time of an ultrasound sound according to claim 10, wherein the means for determining the i^{th} oscillation comprise a counter and a decoder.

13/ A device for measuring the propagation time T_p of an ultrasound signal according to claim 10, wherein the means for measuring the variable time comprise a time expander circuit.